Mock Interview Assignment (Fleet Management)

-by Salesforce Techbook

-by Aradhika

http://salesforce-walker.blogspot.com

https://github.com/salesforcetechbook/ExampleCodesofSessions

Contact on :salesforcetechbook@gmail.com

Hands on Mock Interview Assignment

Fleet Management Systems

A	B	C
	App specifications and customization requirement	
Step 1	You are a software engineer working for a customer in the public transportation sector. This customer (Super Transportation Co.) has a large fleet of buses that they must constantly repair and maintain regularly. They would like to create a Fleet Management System for these vehicles to ensure that they are operating efficiently and reducing costs. The fleet management system should be able to do the following:(Custom object - Bus, Garage, Maintenance record) • Allow users to manage (create, update, and delete) a 'Bus' record. Some fields for a bus record would include: ○ Bus ID ○ Year	Data Modal
Step 2	Show use of lightnong flows for data creation	Flows
Step 3	Build trigger logic to calculate resale value. The business wants to record the resale value of the bus and have that be stored on the record. Resale Value is determined by: • If the bus is a 24 passenger, the starting selling price is $120,000 • If the bus is a 36 passenger, the starting selling price is $160,000	Apex Trigger
Step 4	The company has connected the buses with a sensor that records the odometer reading and last ping location of the bus on a daily basis. Based on that information, they want to schedule a maintenance visit for all their 60 seater buses after every 5000 miles. Schedule a nightly job that creates a scheduled maintenance visit to the closest garage. You can	Batch Processing
Step 5	Build a page that lists all the buses in the fleet. It should display them as a grid of cards. • Each card should contain the image of the bus and the name or Id of the bus as a caption with the thumbnail. • Clicking on a bus should give the user the ability to see and edit details of the bus. • Data should be refreshed on the grid after the save is completed.	LWC
Step 6	Show use of lightnong flows atch processing	Flows
Step 7	Submission - Upload your code to Github and include a ReadMe that explains how we can spin up a local environment to see the results, provide permission set with App access	Git
Step 8	Submission - Package your code to unmanged package and include a ReadMe in package that explains how the app works with attaching the powerpoint presentation	Unmanaged Package

Step 1 - Data Modal and Step 2 - Data Creation

You are a software engineer working for a customer in the public transportation sector. This customer (Super Transportation Co.) has a large fleet of buses that they must constantly repair and maintain regularly. They would like to create a Fleet Management System for these vehicles to ensure that they are operating efficiently and reducing costs.

The fleet management system should be able to do the following:(Custom object - Bus, Garage, Maintenance record)

- Allow users to manage (create, update, and delete) a 'Bus' record. Some fields for a bus record would include:
  - Bus ID
  - Year
  - Number of wheels
  - Odometer Reading
  - Whether or not it has air conditioning
  - Maximum Capacity (options are 6, 12, 24, 36, 60)

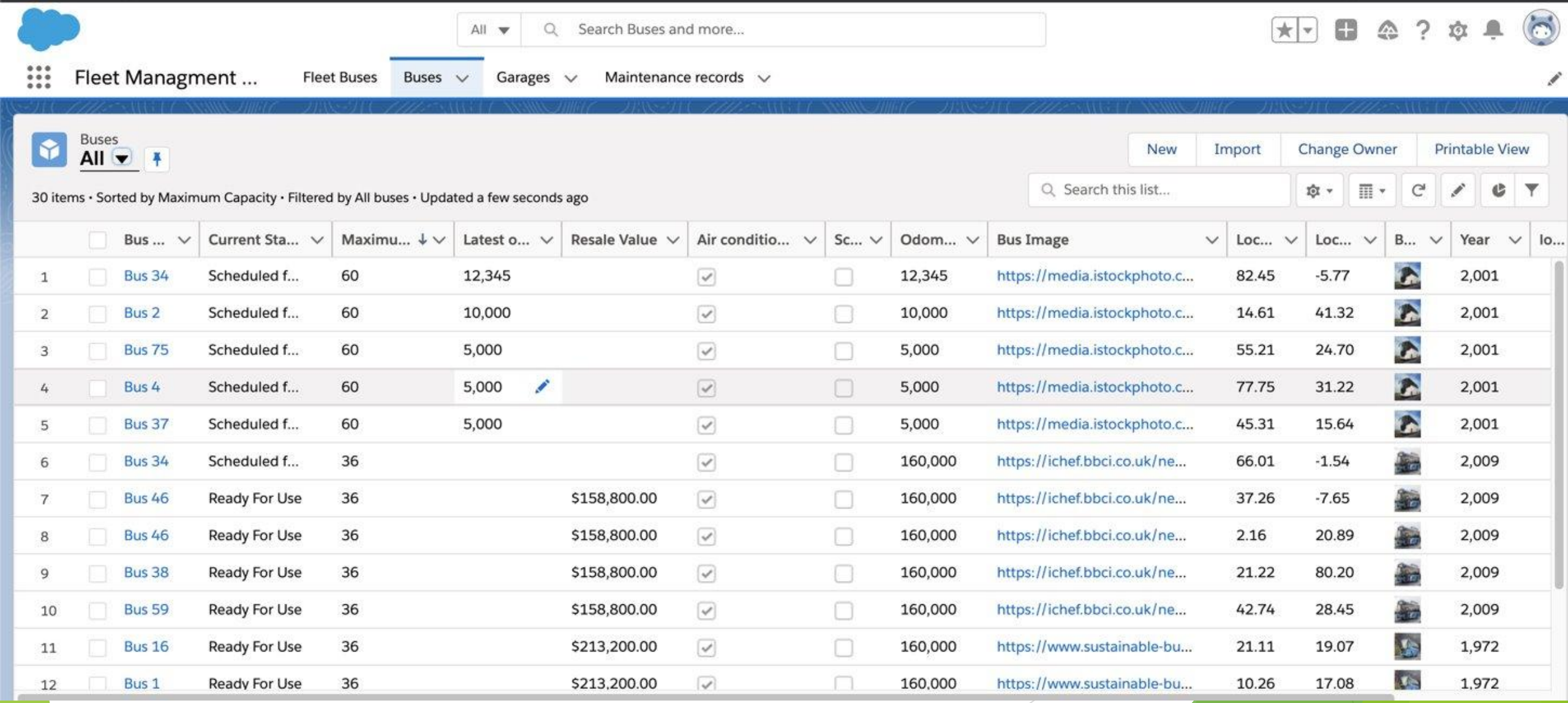
2

  - Current Status (Scheduled for Maintenance, Undergoing Repairs, Ready For Use)
  - Any additional fields that you feel are needed to meet requirements

records include:

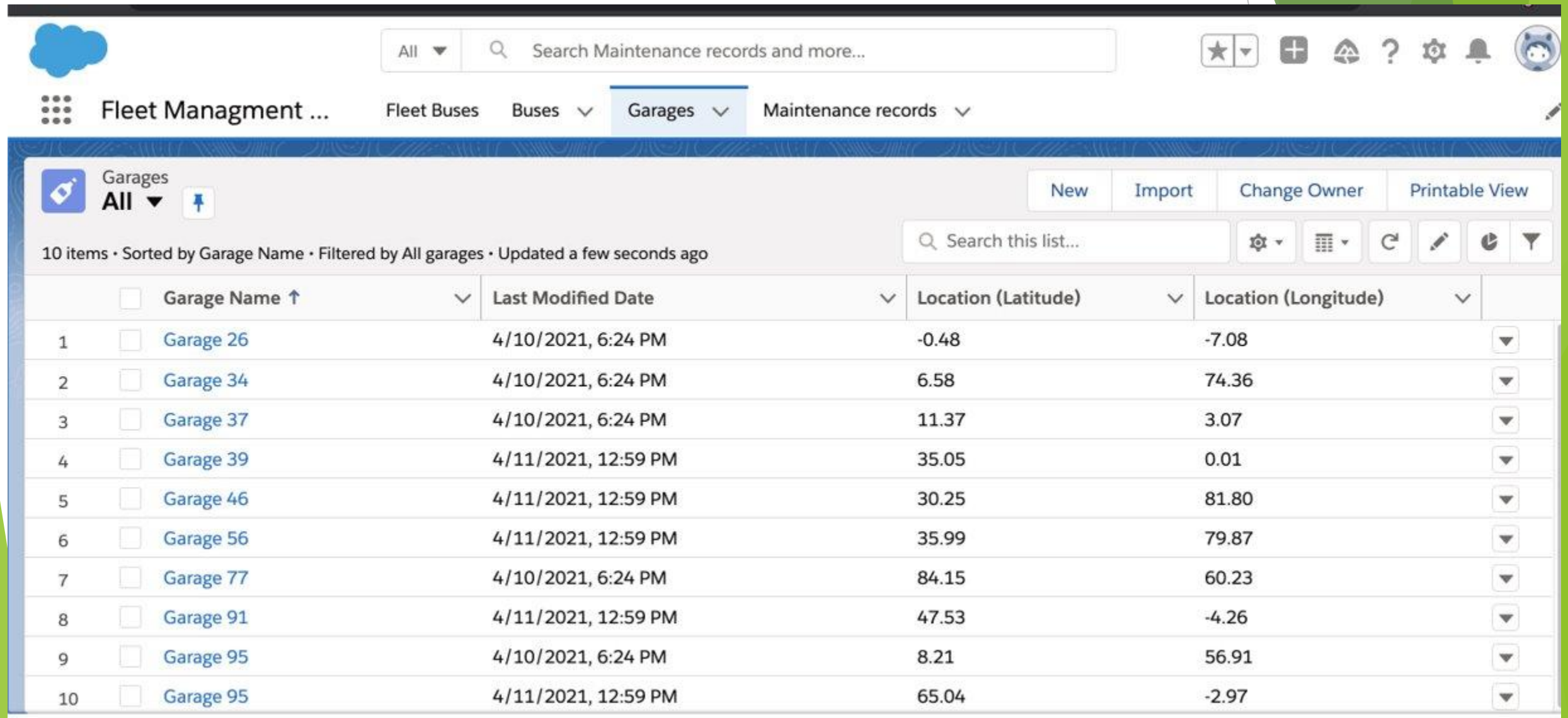
  - Garage ID
  - Location (Lat and Long)
  - Any additional fields that you feel are needed to meet requirements.
- Allow users to create a maintenance record for a bus at one of the company garages. For example, schedule an oil change or install a new fan belt. The record at a glance should tell us
  - Schedule Time
  - Recorded odometer
  - Oil level
  - Tire conditions
  - Braking fluid level
  - Schedule reason

Custom Object - Bus



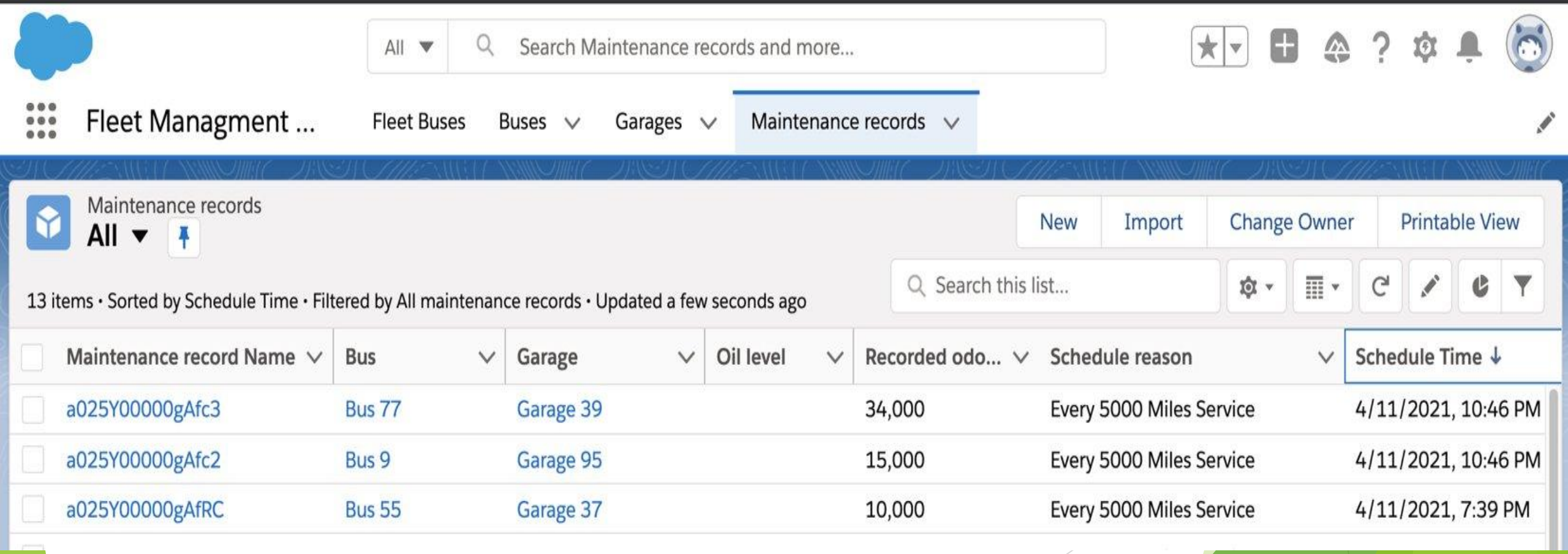
	Bus ...	Current Sta...	Maximu...	Latest o...	Resale Value	Air conditio...	Sc...	Odom...	Bus Image	Loc...	Loc...	B...	Year	Io...
1	Bus 34	Scheduled f...	60	12,345		☑	☐	12,345	https://media.istockphoto.c...	82.45	-5.77		2,001	
2	Bus 2	Scheduled f...	60	10,000		☑	☐	10,000	https://media.istockphoto.c...	14.61	41.32		2,001	
3	Bus 75	Scheduled f...	60	5,000		☑	☐	5,000	https://media.istockphoto.c...	55.21	24.70		2,001	
4	Bus 4	Scheduled f...	60	5,000		☑	☐	5,000	https://media.istockphoto.c...	77.75	31.22		2,001	
5	Bus 37	Scheduled f...	60	5,000		☑	☐	5,000	https://media.istockphoto.c...	45.31	15.64		2,001	
6	Bus 34	Scheduled f...	36			☑	☐	160,000	https://ichef.bbci.co.uk/ne...	66.01	-1.54		2,009	
7	Bus 46	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	37.26	-7.65		2,009	
8	Bus 46	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	2.16	20.89		2,009	
9	Bus 38	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	21.22	80.20		2,009	
10	Bus 59	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	42.74	28.45		2,009	
11	Bus 16	Ready For Use	36		$213,200.00	☑	☐	160,000	https://www.sustainable-bu...	21.11	19.07		1,972	
12	Bus 1	Ready For Use	36		$213,200.00	☑	☐	160,000	https://www.sustainable-bu...	10.26	17.08		1,972	

Custom Object - Garage

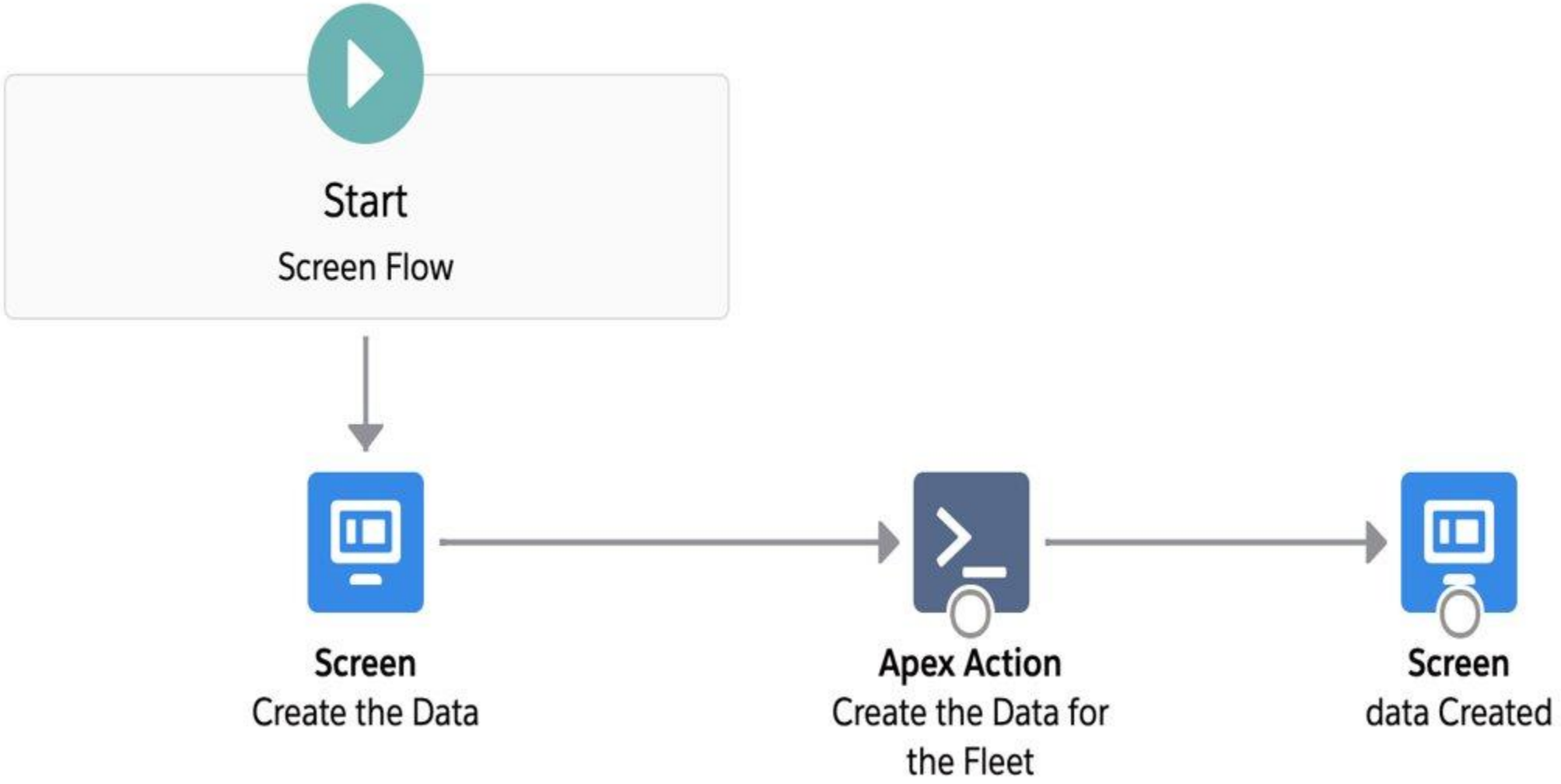


	Garage Name	Last Modified Date	Location (Latitude)	Location (Longitude)
1	Garage 26	4/10/2021, 6:24 PM	-0.48	-7.08
2	Garage 34	4/10/2021, 6:24 PM	6.58	74.36
3	Garage 37	4/10/2021, 6:24 PM	11.37	3.07
4	Garage 39	4/11/2021, 12:59 PM	35.05	0.01
5	Garage 46	4/11/2021, 12:59 PM	30.25	81.80
6	Garage 56	4/11/2021, 12:59 PM	35.99	79.87
7	Garage 77	4/10/2021, 6:24 PM	84.15	60.23
8	Garage 91	4/11/2021, 12:59 PM	47.53	-4.26
9	Garage 95	4/10/2021, 6:24 PM	8.21	56.91
10	Garage 95	4/11/2021, 12:59 PM	65.04	-2.97

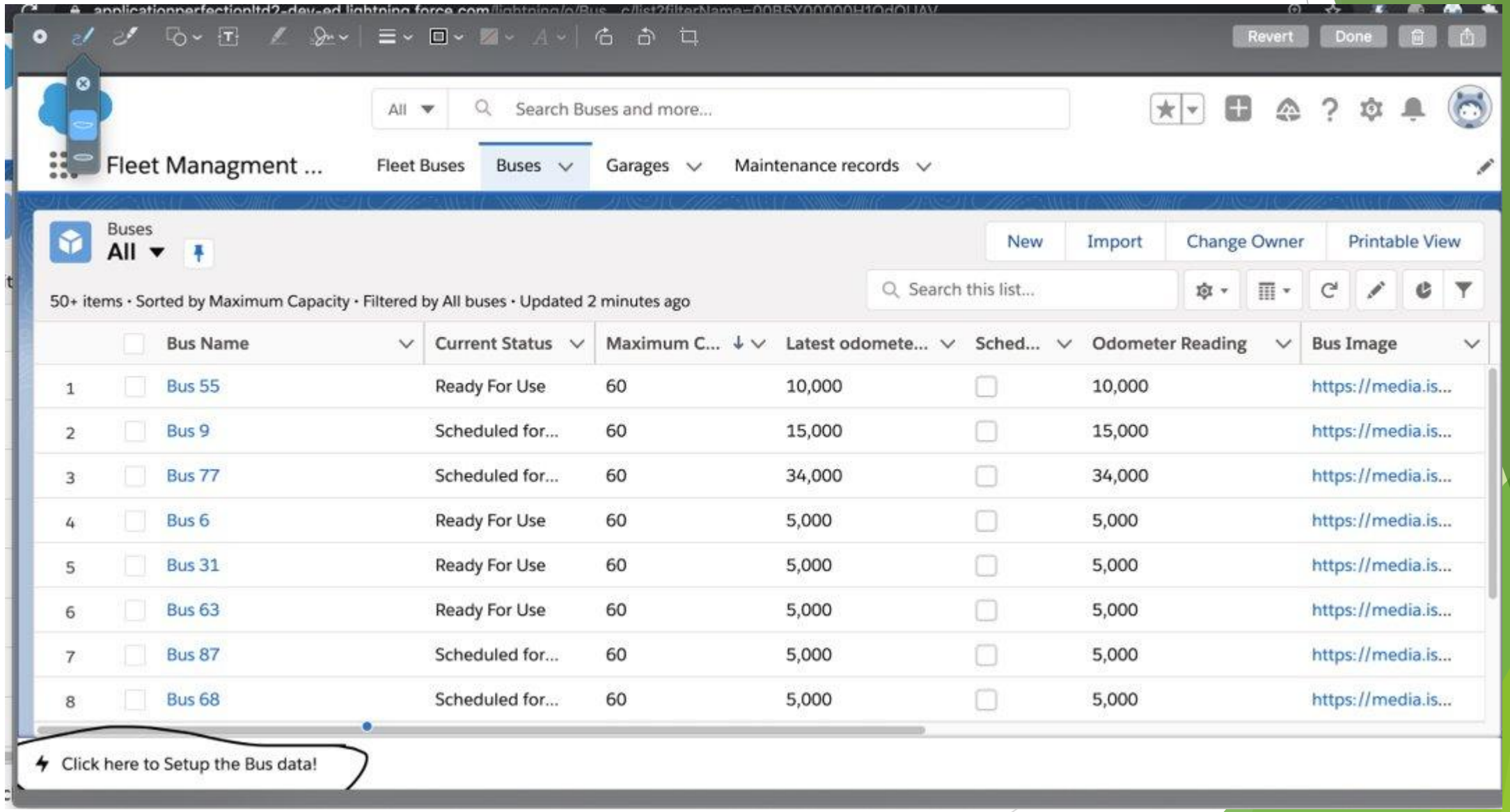
Custom Object - Maintenance records



Flow for the creation of data is provided and attached as utility bar



Flow for the creation of data is provided as utility bar shown below



➢ How to navigate to the App

1 Open the org and select the app ‘Fleet Management system’ from App Launcher

2 Click on Fleet buses

3. Click on bottom ‘Click here to setup the Bus Data’ to setup some data and refresh the page

4. Data should be dispalyed on Fleet Buses page, when clicked on any bus tile , details should appear on right side and you should be able to save the record and edits should reflect on the left side Buses List

Demo for Data Modal (fields and relationship) and lightning flows for data creation

Step 3 - Apex Trigger

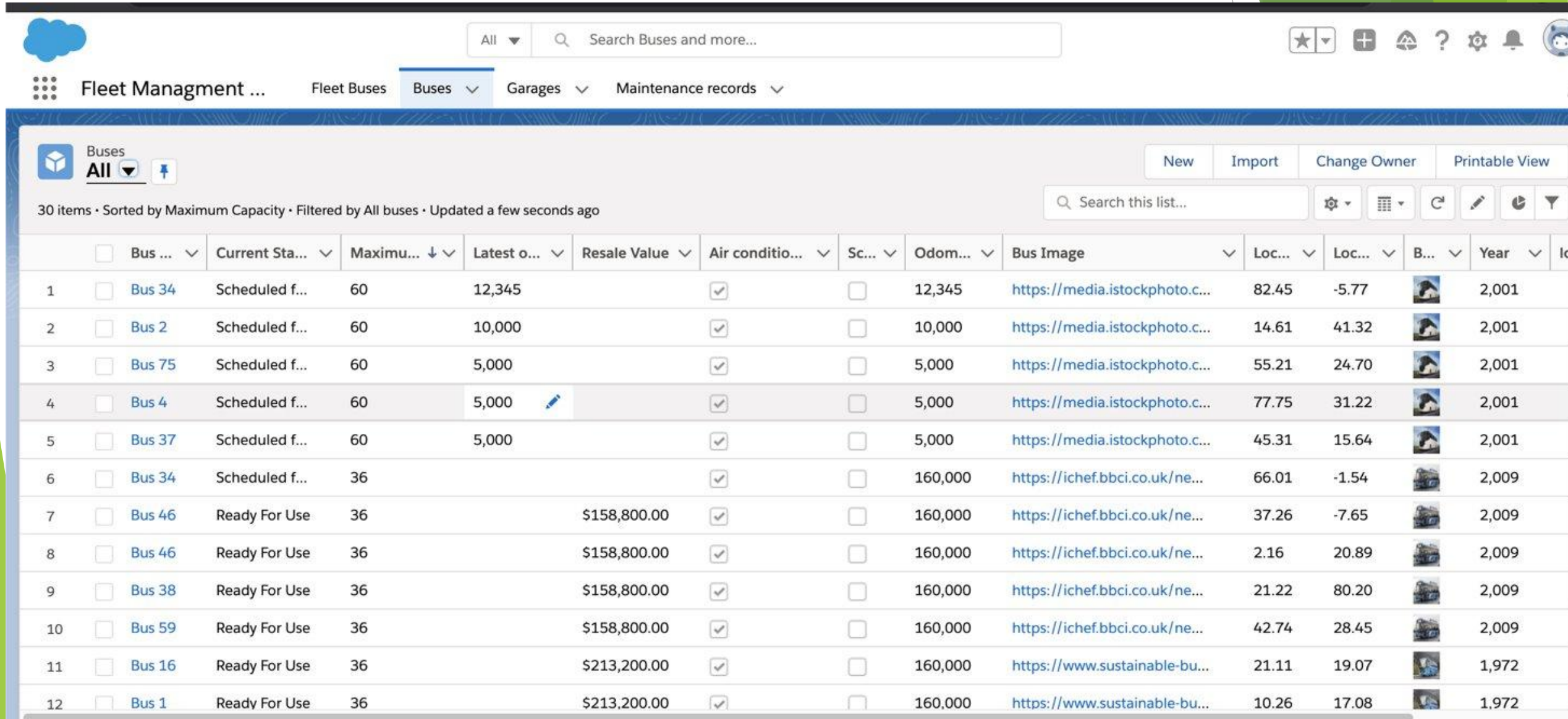
Build trigger logic to calculate resale value. The business wants to record the resale value of the

bus and have that be stored on the record.

Resale Value is determined by:

- If the bus is a 24 passenger, the starting selling price is $120,000
- If the bus is a 36 passenger, the starting selling price is $160,000
- It should only be considered if it's current status is "Ready for Use"
- For every mile over 100,000 on the odometer, the price is reduced by $.10
- If the bus has an air conditioning system, Increase the starting selling price by 3%
- If the bus year is 1972 or older, consider it historic. Increase the starting selling price by 34%

- Resale values calculated as soon as data created or edited for bus by trigger for bus with 24 and 36 seat with current status 'Ready for use'



	Bus ...	Current Sta...	Maximu...	Latest o...	Resale Value	Air conditio...	Sc...	Odom...	Bus Image	Loc...	Loc...	B...	Year
1	Bus 34	Scheduled f...	60	12,345		☑	☐	12,345	https://media.istockphoto.c...	82.45	-5.77		2,001
2	Bus 2	Scheduled f...	60	10,000		☑	☐	10,000	https://media.istockphoto.c...	14.61	41.32		2,001
3	Bus 75	Scheduled f...	60	5,000		☑	☐	5,000	https://media.istockphoto.c...	55.21	24.70		2,001
4	Bus 4	Scheduled f...	60	5,000		☑	☐	5,000	https://media.istockphoto.c...	77.75	31.22		2,001
5	Bus 37	Scheduled f...	60	5,000		☑	☐	5,000	https://media.istockphoto.c...	45.31	15.64		2,001
6	Bus 34	Scheduled f...	36			☑	☐	160,000	https://ichef.bbci.co.uk/ne...	66.01	-1.54		2,009
7	Bus 46	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	37.26	-7.65		2,009
8	Bus 46	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	2.16	20.89		2,009
9	Bus 38	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	21.22	80.20		2,009
10	Bus 59	Ready For Use	36		$158,800.00	☑	☐	160,000	https://ichef.bbci.co.uk/ne...	42.74	28.45		2,009
11	Bus 16	Ready For Use	36		$213,200.00	☑	☐	160,000	https://www.sustainable-bu...	21.11	19.07		1,972
12	Bus 1	Ready For Use	36		$213,200.00	☑	☐	160,000	https://www.sustainable-bu...	10.26	17.08		1,972

Demo of Apex Trigger, code and test classs

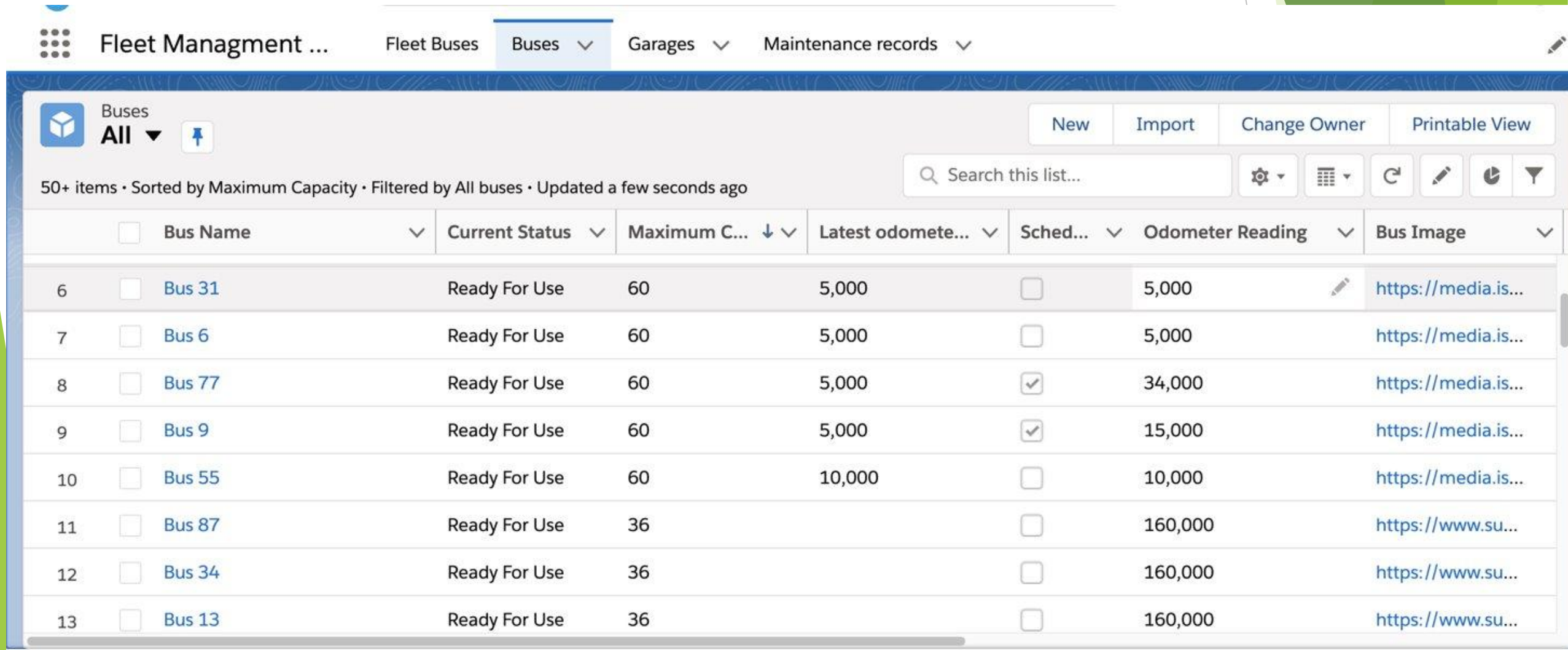
➢ Step 4 - Batch Processing

The company has connected the buses with a sensor that records the odometer reading and last ping location of the bus on a daily basis. Based on that information, they want to schedule a maintenance visit for all their 60 seater buses after every 5000 miles.

Schedule a nightly job that creates a scheduled maintenance visit to the closest garage.

You can leverage the apex Location class to compute the address.

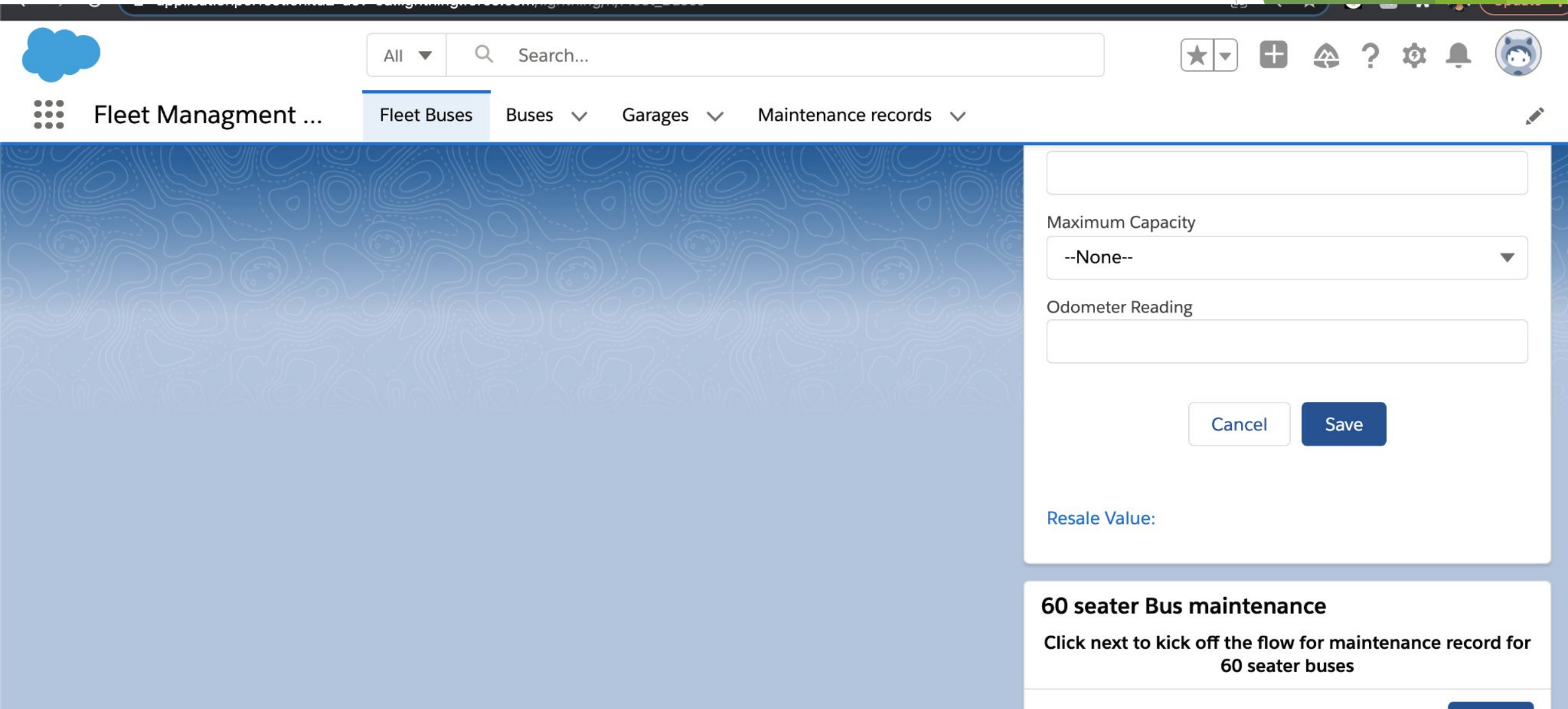
Buses ready to be scheduled for maintenance every 5000 miles, formula field schedule bus for service will be checked will be picked up by the batch file



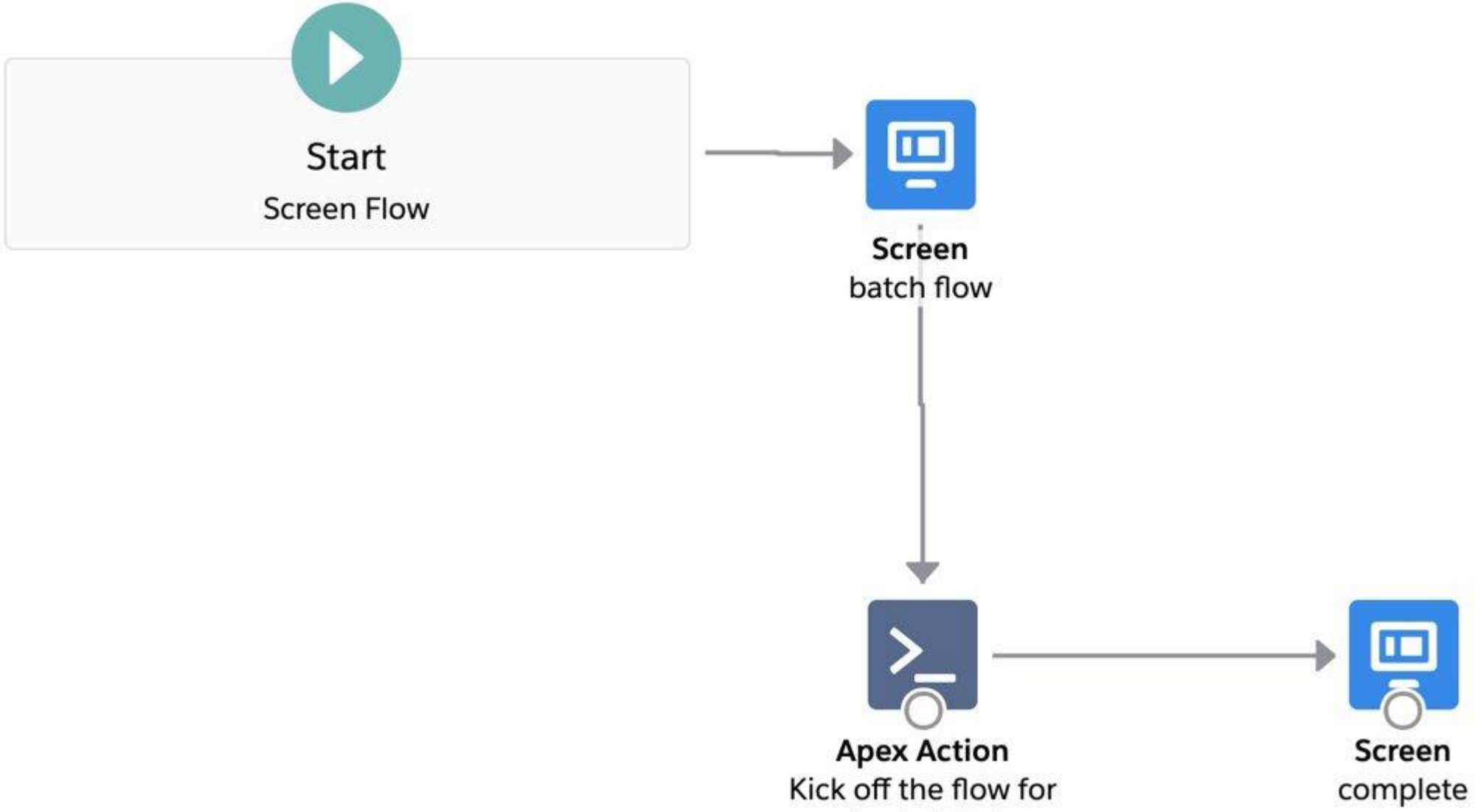
	Bus Name	Current Status	Maximum C...	Latest odomete...	Sched...	Odometer Reading	Bus Image
6	Bus 31	Ready For Use	60	5,000	☐	5,000	https://media.is...
7	Bus 6	Ready For Use	60	5,000	☐	5,000	https://media.is...
8	Bus 77	Ready For Use	60	5,000	☑	34,000	https://media.is...
9	Bus 9	Ready For Use	60	5,000	☑	15,000	https://media.is...
10	Bus 55	Ready For Use	60	10,000	☐	10,000	https://media.is...
11	Bus 87	Ready For Use	36		☐	160,000	https://www.su...
12	Bus 34	Ready For Use	36		☐	160,000	https://www.su...
13	Bus 13	Ready For Use	36		☐	160,000	https://www.su...

Lightning flows batch processing on App Page and Schedule flow can be used to schedule batch file

Batch file flow is added on App Page to run batch manually

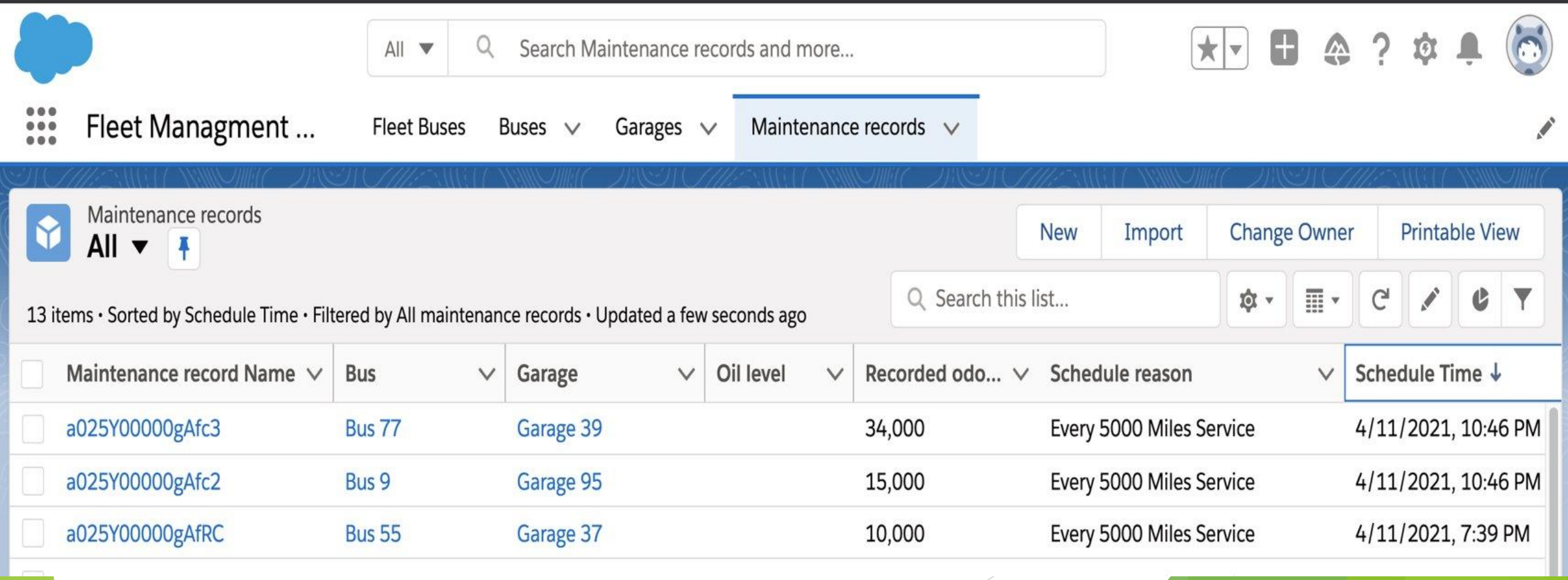


One another flow is placed on the main App page to kick off the batch file manually for creating maintenance records for 60 seater buses for every 5000miles



A Schedule flow is created to schedule maintenance every 5000 miles for 60 seater buses

Maintenance records got created when Batch program ran or scheduled.



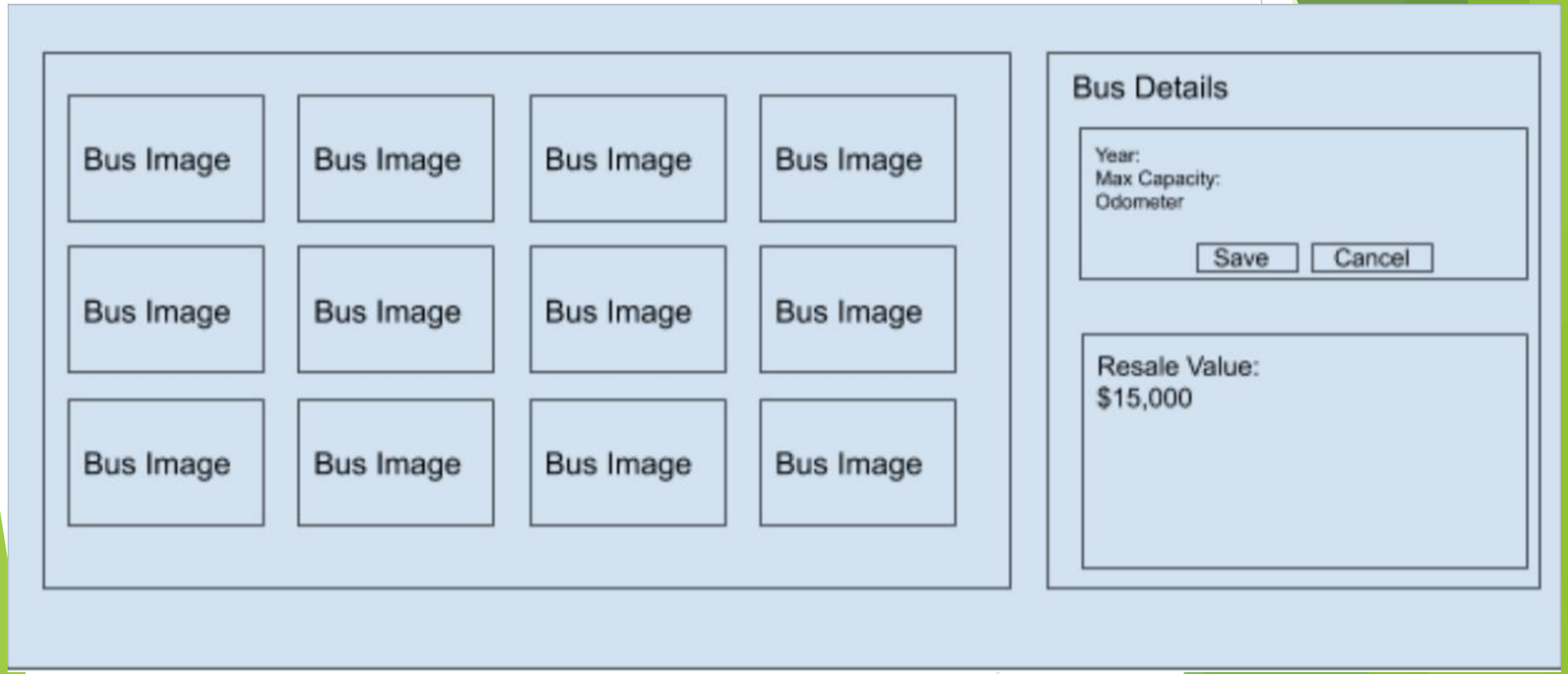
Demo of Batch Processing

➢ Step 5 - Lightning Page with LWC

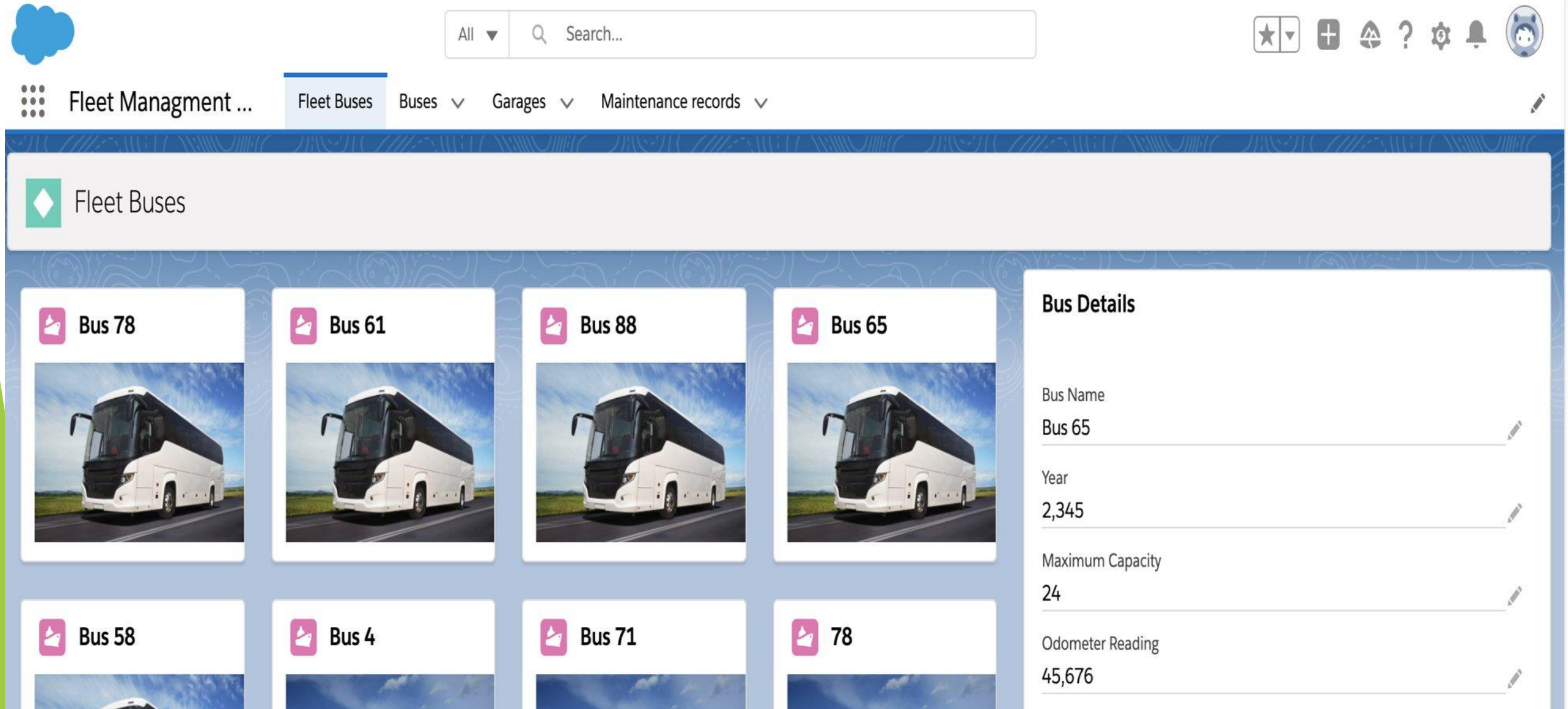
Build a page that lists all the buses in the fleet. It should display them as a grid of cards.

- Each card should contain the image of the bus and the name or Id of the bus as a caption with the thumbnail.
- Clicking on a bus should give the user the ability to see and edit details of the bus.
- Data should be refreshed on the grid after the save is completed.
- Add a separate tile to list the resale value of the car.

LWC design


Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Image
Bus Details
Year:
Max Capacity:
Odometer
Save
Cancel
Resale Value:
$15,000

➢ Fleet Bus Page with LWCs



All Search...

Fleet Managment ... Fleet Buses Buses Garages Maintenance records

Fleet Buses

Bus 78

Bus 61

Bus 88

Bus 65

Bus 58

Bus 4

Bus 71

78

Bus Details

Bus Name
Bus 65

Year
2,345

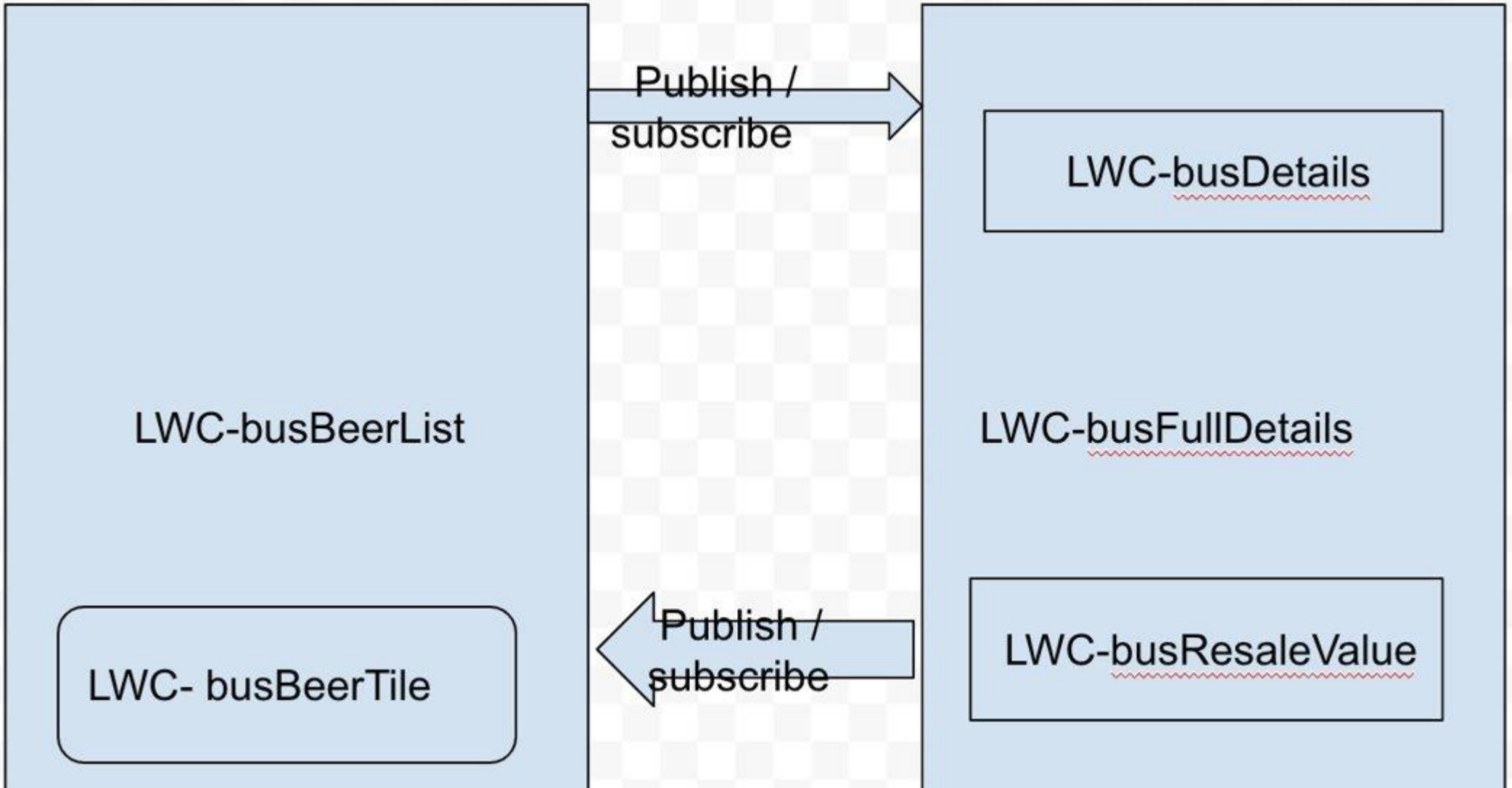
Maximum Capacity
24

Odometer Reading
45,676

Resale Value:
$3,600.00

When clicked on any bus image details will show on right side and all the updates on bus details will reflect back right away on left side and on resale value

This is how the LWC layout and use of Lightning message service designed



Demo of Lightning Page LWC Page

➢ Step 7 - Git

Submission - Upload your code to Github and include a ReadMe that explains how we can spin up a local environment to see the results, provide permission set with App access

Reference - Expected Results from deployment.pdf
https://github.com/aradhikachawla/FleetManagement/blob/master/Expected%20Results%20from%20deployment.pdf

Demo of Code deployment from git

➢ Step 8 - Unmanaged Package

Submission - Package your code to unmanged package and include a ReadMe in package that explains how the app works with attaching the powerpoint presentation

Demo of code deployment from Package

➢ Review of App – How to navigate to the App

1 Open the org and select the app ‘Fleet Management system’ from App Launcher

2 Click on Fleet buses

3. Click on bottom ‘Click here to setup the Bus Data’ to setup some data and refresh the page

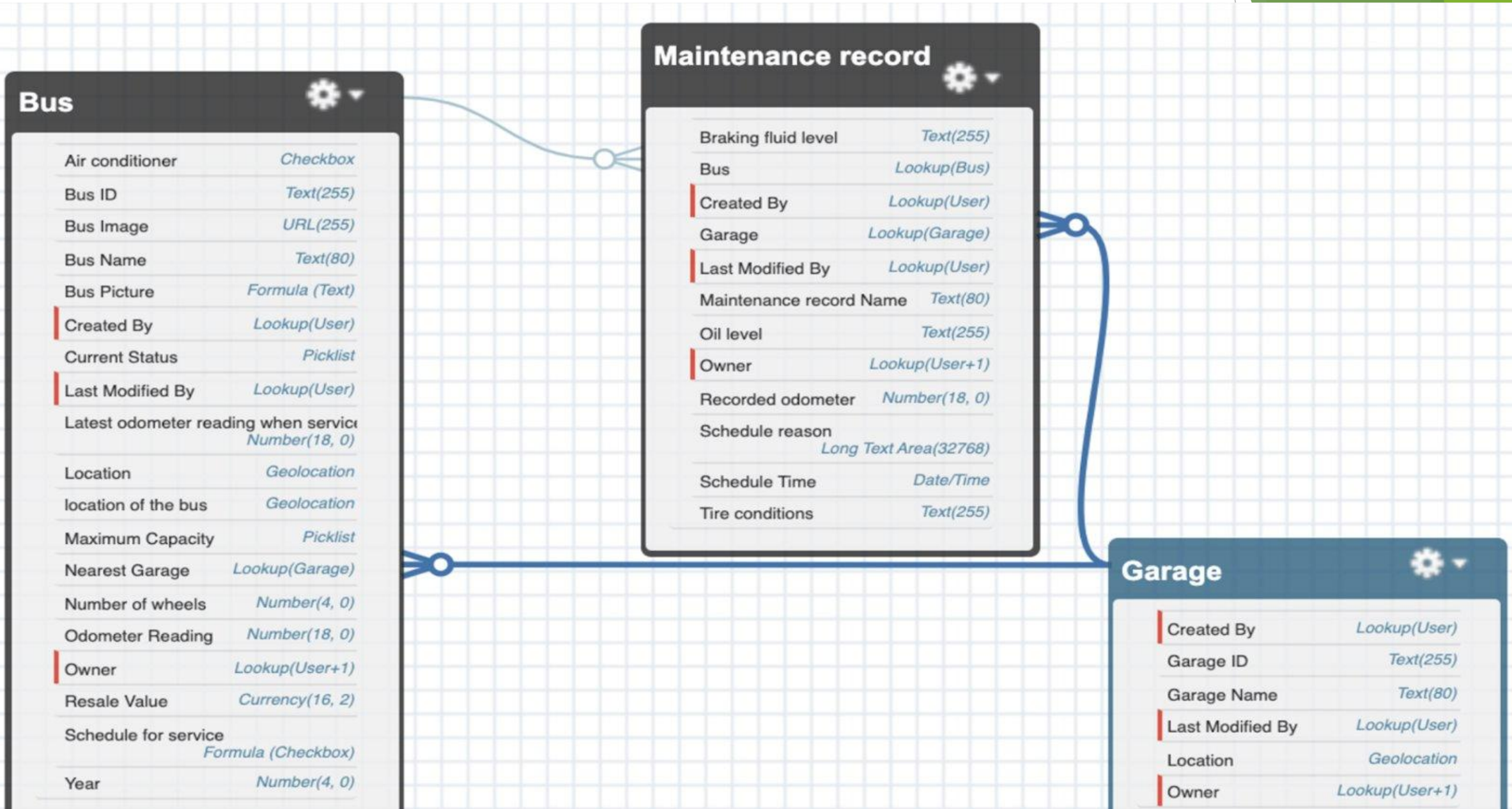
4. Data should be dispalyed on Fleet Buses page, when clicked on any bus tile , details should appear on right side and you should be able to save the record and edits should reflect on the left side Buses List

5. Test the trigger by adding more data to trigger the trigger to reflect resale value

6. Test the batch processing by updating the data and running batch from lightning page

7. Schedule the batch process

ER Diagram


Bus
Air conditioner Checkbox
Bus ID Text(255)
Bus Image URL(255)
Bus Name Text(80)
Bus Picture Formula (Text)
Created By Lookup(User)
Current Status Picklist
Last Modified By Lookup(User)
Latest odometer reading when servic Number(18, 0)
Location Geolocation
location of the bus Geolocation
Maximum Capacity Picklist
Nearest Garage Lookup(Garage)
Number of wheels Number(4, 0)
Odometer Reading Number(18, 0)
Owner Lookup(User+1)
Resale Value Currency(16, 2)
Schedule for service Formula (Checkbox)
Year Number(4, 0)
Maintenance record
Braking fluid level Text(255)
Bus Lookup(Bus)
Created By Lookup(User)
Garage Lookup(Garage)
Last Modified By Lookup(User)
Maintenance record Name Text(80)
Oil level Text(255)
Owner Lookup(User+1)
Recorded odometer Number(18, 0)
Schedule reason Long Text Area(32768)
Schedule Time Date/Time
Tire conditions Text(255)
Garage
Created By Lookup(User)
Garage ID Text(255)
Garage Name Text(80)
Last Modified By Lookup(User)
Location Geolocation
Owner Lookup(User+1)

Test classes are also made

- CalculateResaleValueTest
- MaintenanceSchedulableClassTest
- BatchClassForMaintanananceNewTest

Reference

- https://developer.salesforce.com/docs/component-library/bundle/lightning-datatable/example

Please

Subscribe

Salesforce Techbook